PTO/SB/06A(10-01)
Approved for use through 10/31/2002, CMB 651-0031
A 5 Transmint Office, U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO Complete if Known INFORMATION DISCLOSURE 10/028643 **Application Number** STATEMENT BY APPLICANT December 20, 2001 Filing Date First Named Inventor Ahn, Kie 2814 **Group Art Unit** AUG 0 4 2003 Pham, Long **Examiner Name** Attorney Docket No: 1303.030US1 Sheet 1 of 6

| US PATENT DOCUMENTS | | | | | | |
|---------------------|------------------------|------------------|--|-------|----------|----------------------------|
| Examiner Initial | USP Document Number | Publication Date | Name of Patentee or Applicant of cited Document | Class | Subclass | Filing Date If Appropriate |
| 4 | US-3,381,114 | 04/30/1968 | Nakanuma, Sho | 219 | 385 | 12/18/1964 |
| | US-4,590,042 | 05/20/1986 | Drage, David J. | 422 | 186.06 | 12/24/1984 |
| | US-4,767,641 | 08/30/1988 | Kieser, Jorg, et al. | 427 | 38 | 07/03/1986 |
| | US-4,993,358 | 02/19/1991 | Mahawili, Imad | 118 | 715 | 07/28/1989 |
| | US-5,006,192 | 04/09/1991 | Deguchi, Mikio | 156 | 345 | 11/21/1988 |
| | US-5,080,928 | 01/14/1992 | Klinedinst, K. A., et al. | 427 | 70 | 10/05/1990 |
| | US-5,198,029 | 03/30/1993 | Dutta, A., et al. | 118 | 303 | 02/19/1992 |
| | US-5,698,022 | 12/16/1997 | Glassman, T. E., et al. | | | 08/14/1996 |
| | US-5,735,960 | 04/07/1998 | Sandhu, Gurtej S., et al. | 118 | 723 IR | 04/02/1996 |
| | US-5,916,365 | 01/29/1999 | Sherman, A. | 117 | 92 | 08/16/1996 |
| | US-5,950,925 | 09/14/1999 | Fukunaga, Yukio , et al. | 239 | 132.3 | 10/10/1997 |
| | US-6,059,885 | 05/09/2000 | Ohashi, Tadashi , et al. | 118 | 730 | 12/16/1997 |
| | US-6,161,500 | 12/19/2000 | Kopacz, Stanislaw, et al. | 118 | 723 E | 09/30/1997 |
| | US-6,206,972 | 03/27/2001 | Dunham, Scott W. | 118 | 715 | 07/08/1999 |
| | US-6,281,144 | 08/28/2001 | Cleary, Thomas J., et al. | 438 | 780 | 07/15/1999 |
| | US-6,302,964 | 10/16/2001 | Umotoy, Salvador P., et al. | 118 | 715 | 03/16/2000 |
| | US-6,348,386 | 02/19/2002 | Gilmer, D C. | 438 | 288 | 04/16/2001 |
| | US-6,420,279 | 07/16/2002 | Ono, Yoshi , et al. | 438 | 785 | 06/28/2001 |
| | US-6,444,039 | 09/03/2002 | Nguyen, Tue | 118 | 715 | 03/07/2000 |
| | US-6,444,895 | 09/03/2002 | Nikawa, K. | 136 | 212 | 09/24/1999 |
| | US-6,448,192 | 09/10/2002 | Kaushik, Vidya S. | 438 | 785 | 04/16/2001 |
| | US-6,465,334 | 10/15/2002 | Buynoski, Matthew S., et al. | 438 | 591 | 10/05/2000 |
| | US-6,482,740 | 11/19/2002 | Soininen, Pekka J., et al. | 438 | 686 | 05/15/2001 |
| | US-6,514,828 | 02/04/2003 | Ahn, Kie Y., et al. | 438 | 297 | 04/20/2001 |
| | US-6,521,911 | 02/18/2003 | Parsons, Gregory N., et al. | 257 | 52 | 07/19/2001 |
| V | US-6,534,420 | 03/18/2003 | Ahn, Kie Y., et al. | 438 | 768 | 07/18/2001 |

| EXAMINER | LOVO PAAM | DATE CONSIDERED 11/4/03 |
|----------|-----------|-------------------------|
| | | |

PTO/SE/084(10-01)
Approved for use through 10/31/2002 OMB 651-0031
US Privat & Trademist Office, US OSPARTMENT OF COMMERCE
on of information, when the

| | Under the Paperwork Reduction Act of 1995, no persons are | required to respond to a optiection of information unless it contains a valid QMB control number | | | |
|---|---|--|--|--|--|
| Substitute for farm 1449A/PTO | Complete If Known | Complete If Known | | | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | Applicati n Numb r | 10/028643 | | | |
| (Use as many sheets as necessary) | Filing Date | December 20, 2001 | | | |
| OIPE VOIS | First Named Inventor | Ahn, Kie | | | |
| | Group Art Unit | 2814 | | | |
| (AUS 0 1 2003 E | Examiner Name | Pham, Long | | | |
| Sheet 2 of 6 | Attorney Docket No: 1 | 303.030US1 | | | |
| TRAUS? | | | | | |

| | FOREIGN PATENT DOCUMENTS | | | | | | | |
|--------------------|--------------------------|------------------|---|-------|----------|----|--|--|
| Examiner Initials* | Foreign Document No | Publication Date | Name of Patentee or Applicant of cited Document | Class | Subclass | ۲² | | |
| H | JP-5090169 | 04/09/1993 | Watanabe, Kunihiko, et al. | | | | | |
| L | JP-62-199019 | 09/02/1987 | Takaaki, Sasaki | | | | | |

| | OTHER | R DOCUMENTS NON PATENT LITERATURE DOCUMENTS | |
|-----------------------|--------------|---|--------------|
| Examiner Initials* | Cite No 1 | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T |
| | | International Technology for Semiconductor Roadmap, (1999), | |
| 18 | | AARIK, JAAN, et al., "Atomic layer growth of epitaxial TiO2 thin films from TiCl4 and H2O on Al2O3 substrates", Journal of Crystal Growth, (2002),pp. 189-198 | |
| | | AARIK, JAAN, et al., "Phase transformations in hafnium dioxide thin films grown | |
| | | by atomic layer doposition at high temperatures", Applied Surface Science, | |
| | | 173,(2001),pp. 15-21 | |
| 1 | | AARIK, JAAN, et al., "Texture Development in nanocrystalline hafnium dioxide |) |
| | | thin films grown by atomic layer deposition", <u>Journal of Crystal Growth</u> , 220,(2000),pp. 105-113 | |
| | | AHN, KIE Y., et al., "Highly Reliable Amorphous High-K Gate Oxide ZrO2", | |
| | | Micron Docket No. 01-0516, (May 17, 2001),3 pages | |
| | | BUNSHAH, ROINTAN F., et al., "Deposition Technologies for Films and | |
| | | Coatings", Developments and Applications,pp. 102-103 | |
| | | CAVA, R J., et al., "Improvement of the dielectric properties of Ta2O5 through substitution with Al2O3", Applied Physics Letters, (03/17/1997),pp. 13981396- | |
| | | COPEL, M., et al., "Structure and stability of ultrathin zirconium oxide layers on | |
| | • | Si(001)", Applied Physics Letters, Vol 76, No. 4,(January 24, 2000),pp. 436-438 | |
| | | DE FLAVIIS, FRANCO, et al., "Planar Micorwave Integrated Phase-Shifter | |
| 1 1 | | Design with High Purity Ferroelectric Material*, IEEE Transactions on Microwave | |
| | | <u>Theory Techniques</u> , vol. 45, no. 6,(June 1997),pp. 963-969 | |
| | | FORSGREN, KATARINA, et al., "Atomic Layer Deposition of HfO2 using | 1 |
| | | hafnium iodide", Conference held in Monterey, California, (May, 2001),1 page | |
| | | FUYUKI, TAKASHI, et al., "Electronic Properties of the Interface between Si and | |
| | | TiO2 Deposited at Very Low Temperatures", <u>Jpn. J. Appl. Phys.</u> , Vol. 25, No. | } |
| | | 9,(1986),pp. 1288-1291 | |
| 1 1 | | GARTER, M., et al., "Spectroellipsometric characterization of lanthanide-doped | 1 |
| } { | | TiO2 films obtained via the sol-gel technique", Thin Solid Films, 234,(1993),pp. | } |
| | | 561-565 | ļ |
| | | GELLER, S., et al., "Crystallographic Studies of Perovskite-like Compounds. II. Rare Earth Aluminates", Acta Cryst. Vol. 9, (May 29, 1956),pp. 1019-1025 | |
| | | GIESS, E. A., et al., "Lanthanide gallate perovskite-type substrates for epitaxial, | |
| | | high-Tc superconducting Ba2YCu3O7- films", IBM J. Res. Develop. vol. 34, No. | |
| L_V | | 6, (November 6, 1990),pp. 916-926 | |

| EXAMINER | LONG | pham | DATE CONSIDERED | 2/03 |
|----------|------|------|-----------------|------|

PTC/SB/08A/10-01)
Approved for use through 10/31/2002 CMB-651-0031
US Purel & Tredmark Once: U.S. DEPARTIENT OF CONNERCE
ton of Information value.

| | | Under the Peperwork Reduction Act of 1995, no persons are: | required to respond to a collection of information unless it contains a valid DMB control number | | |
|---|------------|--|--|--|--|
| Substitute for form 1449A/PTO | 105 | Complete If Known | | | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary) | | Application Number | 10/028643 | | |
| | | Filing Date | December 20, 2001 | | |
| | | First Named Inventor | Ahn, Kie | | |
| | O' E SELTE | Group Art Unit | 2814 | | |
| AUE O | 4 2003 \$ | Examiner Name | Pham, Long | | |
| Sheet 3 of 6 | at C | Attorney Docket No: 1303.030US1 | | | |
| & TR | ADEMA | | | | |

| | OTHER | R DOCUMENTS NON PATENT LITERATURE DOCUMENTS | |
|-----------------------|--------------|---|----------|
| Examiner initials* | Cite No 1 | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T |
| | | GUSEV, E.P., et al., "Ultrathin High-K Dielectrics Grown by Atomic Layer | |
| 10 | | Deposition: A Comparative Study of ZrO2, HfO2, Y2O3 and Al2O3", | |
| | | Electrochemical Society Proceedings Volume 2001-9, (2001),pp. 189-195 | <u> </u> |
| 1 | | IDDLES, D. M., et al., "Relationships between dopants, microstructure and the | |
| } | | microwave dielectric properties of ZrO2-TiO2-SnO2 ceramics", Journal of | |
| | | Materials Science, Vol. 27,(1992),pp. 6303-6310 | 1 |
| | | JEON, SANGHUN, et al., "Excellent Electrical Characteristics of Lanthanide (Pr. | |
| , , | | Nd, Sm, Gd, and Dy) Oxide and Lanthanide-doped Oxide for MOS Gate | |
| į į | | Dielectric Applications", Technical Digest of IEDM, (2001),pp. 471-474 | l |
| | | JEONG, CHANG-WOOK, et al., "Plasma-Assisted Atomic layer Growth of High- | |
| | | Quality Aluminum Oxide Thin Films", Jpn. J. Appl. Phys., Vol. 40,(January | 1 |
| | | 2001),pp. 285-289 | |
| | | KEOMANY, D., et al., "Sol gel preparation of mixed cerium-titanium oxide thin | |
| | | films", Sol. Energy Mater. So. Cells, 33,(1994),pp. 429-441 | |
| | | KIM, C. T., et al., "Application of Al3O3 Grown by Atomic Layer Deposition to | |
| | | DRAM and FeRAM", 12th International Symposium in Integrated Ferroelectrics. | Į. |
| | | (March, 2000),1 page | l |
| | | KIM, BYOUNG-YOUP, et al., "Comparison Study for TiN Films Deposited from | |
| | | Different Method: Chemical Vapor Deposition and Atomic Layer Deposition", | |
| | | Mat. Res. Soc., Symp. Proc., Volume 672,(2001),pp. 7.8.1-7.8.6 | <u> </u> |
| | | KIM, TAESEOK, et al., "Correlation between strain and dielectric properties in | T |
| | | ZrTiO4 thin films", Applied Physics Letters, Volume 76, No. 21,(05/22/2000),pp. | ĺ |
| 1 1 | | 3043-3045 | |
| | | KIM, TAESEOK, et al., "Dielectric Properties and Strain Analysis in Paraelectric | Ţ |
| 1 1 | | ZrTiO4 Thin Films", Japan Journal of Applied Physics, Volume 39,(2000),pp. | (|
| 1 1 | | 4153-4157 | |
| 1 1 | | KIM, YONGJO, et al., "Effect of microstructures on the micorwave dielectric | |
| | | properties of ZrTiO4 thin films", Applied Physics Letters, Volume 78, No. | l |
| { | | 16,(04/16/2001),pp. 2363-2365 | L |
| | | KIM, Y., et al., "Substrate dependence on the optical properties of Al2O3 films | |
| 1 1 | | grown by atomic layer deposition", Appl. Phys. Lett. 71, 25,(December 22, | 1 |
| 1 1 | | 1997),pp. 3604-3606 |] |
| | | KUKLI, KAUPO, et al., "Atomic Layer Deposition of Titanium Oxide Til4 and | 1 |
| j | | H2O2", Chem. Vap. Deposition, Vol. 6, No. 6,(2000),pp. 303-310 | } |
| | | KUKLI, KAUPO, et al., "Dielectric Properties of Zirconium Oxide Grown by | |
| 1 | | Atomic Layer Deposition from Iodide Precursor", Journal of The Electrochemical |] |
| 1 | | Society, 148(12),(2001),pp. F227-F232 | 1 |
| | | KUKLI, KAUPO, et al., "Dielectric Properties of Zirconium Oxide Grown by | |
| | | Atomic Layer Deposition from Iodide Precursor", Journal of The Electrochemical |) |
| | | Society, 148(12),(2001),F227-F232 |] |

| EXAMINER | Conb pham | DATE CONSIDERED 11/2/U3 |
|----------|-----------|-------------------------|

PTC/SB/06A(10-01)
Approved for use through 10/31/2002. ONE 851-0031
US Peent & Traisment Otto: U.S. DEPARTMENT OF COMMERCE

| Under the Paperwork Reduction Act of 1995, no pareons are | required to respond to a collection of information unless it contains a valid OMS control number | | |
|---|--|--|--|
| Complete if Known | Complete if Known | | |
| Application Number | 10/028643 | | |
| Filing Date | December 20, 2001 | | |
| First Named Inventor | Ahn, Kie | | |
| Group Art Unit | 2814 | | |
| Examiner Name | Pham, Long | | |
| | | | |
| Attorney Docket No: 1 | 1303.030US1 | | |
| | Application Number Filing Date First Named Inventor Group Art Unit Examiner Name | | |

•

| | LEE A E at all Westervielle annua annua all attores Annual Annual Charles Law 57 |
|---|---|
| 4 | LEE, A. E., et al., "Epitaxially grown sputtered LaAlO3 films", Appl. Phys. Lett. 57 (19), (November 5, 1990),pp. 2019-2021 |
| | LEE, CHENG-CHUNG, et al., "lon-assisted deposition of silver thin films", Thin Solid Films, 359,(2000),pp. 95-97 |
| | |
| | LEE, DONG H., et al., "Metalorganic chemical vapor deposition of TiO2:N |
| | anatase thin film on Si substrate", Appl. Phys. Lett., 66(7), (February 13, |
| | 1995),pp. 815-816 |
| | LEE, L. P., et al., "Monolithic 77 K dc SQUID magnetometer", Appl. Phys. Lett. 59(23), (December 2, 1991),pp. 3051-3053 |
| | LEE, C. H., et al., "MOS Characteristics of Ultra Thin Rapid Thermal CVD ZrO2 |
| | and Zr Silicate Gate Dielectrics", IEDM, (2000),pp. 27-30 |
| | LEE, C. H., et al., "MOS Devices with High Quality Ultra Thin CVD ZrO2 Gate |
| | Dielectrics and Self-Aligned TaN and TaN/Poly-Si Gate electrodes", 2001 |
| 1 1 | Symposium on VLSI, Technology Digest of Technical Papers, (2001),pp. 137- |
| | 138 |
| | LEE, BYOUNG H., et al., "Ultrathin Hafnium Oxide with Low Leakage and |
| | Excellent Reliability for Alternative Gate Dielectric Application", Technical Digest |
| | of IEDM, (1999),pp. 133-136 |
| | LESKELA, M., et al., "ALD precursor chemistry: Evolution and future |
| | challenges", <u>J. Phys. IV France</u> , 9,(1999),pp. 837-852 |
| | LUO, "Ultra-thin ZrO2 (or Silicate) with High Thermal Stability for CMOS GAte |
| 1 1 | Applications", 2001 Symposium on VLSI Technology Digest of Technical Papers. |
| J | pp. 135-136 |
| | MOLODYK, A. A., et al., "Volatile Surfactant-Assisted MOCVD: Application to |
| | LaAl03 Thin Film Growth", Chem. Vap. Deposition Vol. 6, No. 3, (2000,),pp. 133- |
| | 138 |
| | MULLER, D. A., "The Electronic Structure at the Atomic Scale of Ultrathin Gate |
| | Oxides", Nature, 399, (June 1999),758-761 |
| | NAKAGAWARA, OSAMU, et al., "Electrical properties of (Zr, Sn)TiO4 dielectric |
| 1 1 | thin film prepared by pulsed laser deposition", <u>J. Appl. Phys.</u> , 80(1),(July 1, |
| | 1996),pp. 388-392 |
| | NAKAJIMA, ANRI , et al., "Atomic-layer deposition of ZrO2 with a Si nitride |
| | barrier layer*, Applied Physics Letters, Volume 81, No. 15,(10/07/2002),pp. |
| | 2824-2826 |
| - | OATES, D E., et al., "Surface Impedance Measurements of YBa2Cu3O7-x Thin |
| | Films In Stripline Resonators", IEEE Transactions on Magnetics, Volume 27, No. |
| | 2,(1991),pp. 867-871 |
| - | OSTEN, H. J., et al., "High-k Gate Dielectrics with Ultra-low Leakage Current |
| | Based on Praseodymium Oxide", <u>Technical Digest of IEDM</u> , (2000),PP. 653-656 |
| | PARK, BYUNG-EUN, et al., "Electrical properties of LaAlO3/Si and |
| } } | Sr0.8Bi2.2Ta2O9/LaAlO3/Si structures", Applied Physics Letters, Vol. 79, No. |
| | 6,(August 6, 2001),pp. 806-808 |
| | 1 0//hagast 0, 200 //pp. 000-000 |

| EXAMINER | Contos | PHAM | DATE CONSIDERED | 11/3/ | 03 |
|----------|--------|------|-----------------|-------|----|
| | | | | | |

PTO/SB/084(10:01)
Approved for use through 10/31/2002, OMB 681-0031
Lift Patient & Transpart Office U.S. DEPARTMENT OF CONNERCE

| Substitute for form 1449A/PTO | Under the Papersonic Reduction Act of 1965, no persons are required to respond to a collection of Information unless it contains a valid CNR control number Complete II Known | | |
|--|--|-------------------|--|
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | Application Numb r | 10/028643 | |
| (Use as many shoets as necessary) | Filing Date | December 20, 2001 | |
| | First Named Inventor | Ahn, Kie | |
|) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | Group Art Unit | 2814 | |
| MIR O F SOLOS ES | Examiner Name | Pham, Long | |
| Sheet 5 of 6 | Attorney Docket No: 1303.030US1 | | |

| | (700) | |
|--------------|---|---|
| , , | PERKINS, CHARLES M., et al., "Electrical and materials properties of ZrO2 gate | |
| $+ i \nu$ | dielectrics grown by atomic layer chemical vapor deposition", Applied Physics | |
| | Letters, Vol. 78, No. 16,(April 16, 2001),pp. 2357-2359 | |
| | QI, W , "MOSCAP and MOSFET characteristics using ZrO2 gate dielectric | |
| | deposited directly on Si", IEDM - Technical Digest, (1999),pp. 145-148 | |
| | QI, WEN-JIE, et al., "Performance of MOSFETs with ultra thin ZrO2 and Zr- | |
| | silicate gate dielectrics", IEEE, (2000),pp. 40-41 | |
| | QI, WEN-JIE, et al., "Performance of MOSFETs with ultra thin ZrO2 and Zr- | |
| 1 1 | silicate gate dielectrics", 2000 Symposium on VLSI Technology, Digest of | |
| | | |
| | Technical Papers, pp. 40-41 | |
| { } | RAMAKRISHNAN, E. S., et al., "Dielectric Properties of Radio Frequency | |
| 1 1 1 | Magnetron Sputter Deposited Zirconium Titanate-Based Thin Films", <u>J.</u> | |
| | Electrochem. Soc., Vol. 145, No. 1,(January, 1998),pp. 358-362 | |
| | RITALA, MIKKO, et al., "Zirconium dioxide thin films deposited by ALE using | |
| 1 1 1 | zirconium tetrachloride as precursor", Applied Surface Science, Vol. | |
| | 75,(1994),pp. 333-340 | |
| | SAITO, Y., "High-Integrity Silicon Oxide Grown at Low-temperature by Atomic | |
| | Oxygen Generated in High-Density Krypton Plasma", Extended Abstracts of the | |
| 1 1 1 | 1999 International Conference on Solid State Devices and Materials, (1999),pp. | |
| 1 1 1 | 152-153 | |
| | SHIN, CHANG H., et al., "Fabriation and Characterization of MFISFET Using | |
| 1 1 | Al2O3 Insulating Layer for Non-volatile Memory", 12th International Symposium | |
| 1 1 1 | in Integrated Ferroelectrics, (March, 2000),9 pages | |
| | SNEH, OFER, et al., "Thin film atomic layer deposition equipment for | |
| 1 1 1 | semiconductor processing", Thin Solid Films, 402,(2002),pp. 248-261 | |
| | | |
| | TAKEMOTO, J. H., et al., "Microstrip Resonators and Filters Using High-TC | |
| | Superconducting Thin Films on LaAlO3", IEEE Transaction on Magnetics, Vol. | |
| | 27, No. 2, (March, 1991),pp. 2549-2552 | |
| 1 1 1 | TARRE, A., et al., "Comparative study of low-temperature chloride atomic-layer | |
| 1 1 | chemical vapor deposition of TiO2 and SnO2", Applied Surface Science. | |
| | (2001),pp. 111-116 | |
| | VAN DOVER, R. B., et al., "Amorphous lanthanide-doped TiOx dielectric films", | |
| <u> </u> | Applied Physics Letters, Vol. 74, No. 20, (May 17, 1999), pp. 3041-3043 | |
| | VAN DOVER, ROBERT B., et al., "Deposition of Uniform Zr-Sn-Ti-O films by | |
| | ON-Axis Reactive Sputtering", IEEE Electron Device Letters, Vol. 19, No. | |
| | 9,(September, 1998),pp. 329-331 | |
| | VAN DOVER, R. B., et al., "Discovery of a useful thin-film dielectric using a | |
| | composition-spread approach", Letters to Nature, (1997),3 pages | ! |
| | WILK, G. D., "High-K gate dielectrics: Current status and materials properties | |
| | considerations", Journal of Applied Physics, Vol. 89, No. 10,(2001),pp. 5243- | 1 |
| | 5275 | |
| | WILK, G. D., et al., "High-K gate dielectrics: Current status and materials | |
| | | |
| | properties considerations", J. Appl. Phys., vol. 89, No. 10, (May 15, 2001),pp. | |
| | 5243-5275 | |

EXAMINER: Install if reference considered, whether or not cliation is in conformance with MPEP 600. Onew line through ortation if not in conformance and not considered, include copy of this form with next communication to applicant a Applicant's tinique disalon designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached.

PTO/S8/08A(10.01)
Approved for use through 19/31/2002, OMB 651-0031
are & Tratement Office, U.S. DEPARTMENT OF COMMERCE

| Inder the Paperwork Reduction Act of 1995, no persons are | required to respend to a collection of information unless it confidence in all MAC Black to the control multiple and the control materials in the control material materials in the control materials in the control material |
|---|--|
| Complete if Known | |
| Application Number | 10/028643 |
| Filing Date | December 20, 2001 |
| First Named Inventor | Ahn, Kie |
| Group Art Unit | 2814 |
| Examiner Name | Pham, Long |
| Attorney Docket No: 1303.030US1 | |
| | Application Number Filing Date First Named Inventor Group Art Unit Examiner Name |

| 18 | WOLF, STANLEY, et al., "Silicon Processing for the VLSI Era - Volume I: Process Technology", Second Edition, Lattice Press, Sunset Beach, California, (2000), page 443 | |
|----|---|--|
| | YAMAGUCHI, TAKESHI, et al., "Band Diagram and Carrier Conduction Mechanism in ZrO2/Zr-silicate/Si MIS Structure Fabricated by Pulsed-laserablation Deposition", IEDM, (2000),pp 19-22 | |
| | YAMAGUCHI, TAKESHI, et al., "Study on Zr-Silicate Interfacial Layer of ZrO2-MIS Structure FAbricated by Pulsed Laser Ablation Deposition Method", Solid State Devices and Materials, (2000),pp. 228-229 | |
| | ZHANG, H., "Atomic Layer Deposition of High Dielectric Constant Nanolaminates", <u>Journal of The Electrochemical Society</u> , 148(4),(April, 2001),F63-F66 | |
| | ZHANG, H., et al., "High permittivity thin film nanolaminates", <u>Journal of Applied Physics</u> , Vol. 87, No. 4,(February 15, 2000),pp. 1921-1924 | |
| | ZHU, W., et al., "HfO2 and HfAlO for CMOS: Thermal Stability and Current Tranport", IEEE International Electron Device Meeting 2001, (2001),pp. 463-466 | |

EXAMINER Long Phon DATE CONSIDERED 11/2/03